

REMARKS

Applicant submits the following remarks in reply to the last Office Action of May 12, 2003.

In that Office Action, claims 1 and 3-7 were rejected under 35 U.S.C. 103 as being unpatentable over Cissel (US Pat. No. 3,084,940) in view of Lu (Re. 35,955) and Lundberg (US Pat. No. 5,839,975).

THE PRESENT INVENTION

The subject matter of the present invention is recited in the claim 1, as follows:

A wood golf club which comprises:

a head having a face on a front, said head defining a toe at one end of the face and a heel at the other end thereof, having an outer shell made of metallic shells, defining a hollow interior, said head also having a rearmost side opposite the face on the front;

a shaft connected to a heel side of the head; and

one or more reinforcing members provided separately inside said outer shell of the head, each of said reinforcing members being tabular, projecting toward the hollow interior, so formed that it is provided nearly along a cross-sectional area of said hollow interior defined in a toe-to-heel direction, a preset distance away from the face to define a preset space therebetween,

wherein each reinforcing member is frame-shaped and makes up 20% or more of the cross-sectional area of the hollow interior in a toe-to-heel direction, and

wherein said reinforcing member is positioned rearwardly of a shaft connecting portion of said head by a first distance that is in a range of $\pm 20\%$ of a second distance extending between said face on the front and said rearmost side of the head, said first distance being measured from a reference position that is half the second distance between the face on the front and the rearmost side of the head.

The remaining claims are dependent from the claim 1, and the present invention set forth in the claim 1 exhibits the following functions and effect.

First, as "one or more reinforcing members are provided separately inside said outer shell of the head, each of said reinforcing members being tabular, projecting toward the hollow interior, so formed that it is provided nearly along a cross-sectional area of said hollow interior defined in a toe-to-heel direction, a preset distance away from the face to define a preset space therebetween", the deformation of the rear side is positioned rearward from the reinforced member, i.e., the deformation of the sole and crown is suppressed while the face portion is effectively bent at the time of striking a ball on the face, thus elongating the traveling distance of the ball.

Further, as "each reinforcing member is frame-shaped and makes up 20% or more of the cross sectional area of the hollow interior in a toe-to-heel direction", the reinforcing member can be lightened, thus realizing the lightening of the whole head, while the prevention of the deformation of the sole and crown can be sufficiently attained.

Furthermore, as "said reinforcing member is positioned rearwardly of a shaft connecting portion of said head by a first distance that is in a range of $\pm 20\%$ of a second distance extending between said face on the front and said rearmost side of the head, said first distance being measured from a reference position that is half the second distance between the face on the front and the rearmost side of the head.", the deformation of the sole and crown can be suppressed in a most effective and reliable manner despite such extremely simple structure that the reinforcing member is tabular.

SUMMARY OF THE CITED REFERENCES

Cissel discloses a club head comprising a front face 10, a heel, a toe and tabular reinforcing plate members 16,

22, 27. The plate member can be arranged at a distance of 1 inch to 1/4 inch away from the front striking face 4, depending on the head to be applied.

Lu discloses a metallic hollow shell structure provided with reinforcing construction.

Lundberg teaches use of reinforcing ribs and the reinforcing ribs are formed in a frame-shape.

COMPARISON OF THE INVENTION TO THE CITED REFERENCES

A study of the above Cissel patent shows that it discloses a club head comprising a front face 10, a heel, toe, and tabular plate members 16, 22, 27, but Cissel's club head is made of wood and therefore it is solid (not hollow), so that Cissel's disclosure does not include the preamble structure of the present invention, that is, the structure in which the outer shell is made of a metallic shell and the head is hollow in its inside.

Further, as Cissel's plate members 16, 22, 27 aim at giving impact to a ball at the time of striking the ball, elongating a traveling distance thereof, they are composed of synthetic resin such as nylon with a lower compressibility than that of wood (column 2, lines 11-19), so that Cissel brings about no effect of suppressing the deformation of the sole and crown at the time of striking a ball.

Still further, in Cissel's club head, a space between the face 4 and the plate 16 is filled, and thus there is little or no possibility for the face to bend at the time of striking a ball to elongate the traveling distance of the ball. Besides, in Cissel's club head, the plate members are different from the reinforced member of the present invention in shape and fitting position and therefore it is clear that Cissel's disclosure and the present invention are entirely different from each other in purpose, structure, function and effect.

Lu discloses a hollow and metallic shell structure provided with a reinforcing construction. However, in Lu's club head, the reinforcing element 16 is formed integrally with the back plate member 32 having a complicated structure, which raises a problem of high production cost. According to the present invention, however, the aforementioned problem is perfectly solved, and despite such simple structure that the reinforcing member is plate-shaped, the deformation of the head body at the time of striking a ball can be reliably suppressed, enabling production cost to be lowered.

Lu discloses a gap of 0.001 to 0.3 inch between the reinforcing element 16 and the face plate. Since a distance from a head face to a rearmost of a club head is about 4 inches in general, it is self-evident that the structure of the present invention that: "said reinforcing member is positioned rearwardly of a shaft connecting portion of said head by a first distance that is in a range of + 20% of a second distance extending between said face on the front and said rearmost side of the head, said first distance being measured from a reference position that is half the second distance between the face on the front and the rearmost side of the head". This presents a totally different structure than the Lu's structure. In other words, if the distance from the face to the rearmost side of golf club head is 4 inches, then the reinforcing member must be provided in a range of 1.2 to 2.8 inches away from the face according to the structure of the present invention. However, the numerical value "0.001 to 0.3 inch" disclosed by Lu considerably deviates from this range.

Lundberg teaches use of reinforcing ribs, which are formed in superstructure. However, the superstructure ribs Lundberg discloses are contacted by the face so that the deformation of the face at the time of striking a ball is hindered. Accordingly, elastic force generated by the deformation of the face cannot be used for increasing an

initial velocity of a ball at the time of striking it. Furthermore, the reinforcing member of the present invention is plate-shaped, while the reinforcing ribs of Lundberg's invention are formed by joining a plurality of stick-like members. Therefore, the invention Lundberg discloses is completely different from the present invention in respect of purpose and structure.

According to the present invention, "one or more reinforcing members are provided separately inside said outer shell of the head, each of said reinforcing members being tabular, projecting toward the hollow interior, so formed that it is provided nearly along a cross-sectional area of said hollow interior defined in a toe-to-heel direction, a preset distance away from the face to define a preset space therebetween", whereby the deformation of the rear portion backward from the reinforcing member, i.e., of the sole and the crown is suppressed and contrarily the face portion is effectively bent, thus elongating the traveling distance of a ball.

Moreover, "the reinforcing member is frame-shaped and makes up 20% or more of the cross-sectional area of the hollow interior in a toe-to-heel direction", by which the reinforcing member is lightened to enable the whole of the head to be lightened, so that deformation suppressing effect of the sole and the crown can be obtained to the satisfactory extent.

Furthermore, "said reinforcing member is positioned rearwardly of a shaft connecting portion of said head by a first distance that is in a range of $\pm 20\%$ of a second distance extending between said face on the front and said rearmost side of the head, said first distance being measured from a reference position that is half the second distance between the face on the front and the rearmost side of the head.", whereby the deformation of the sole and the

crown can be most effectively and certainly suppressed in spite of extremely simple structure that the reinforcing member is tabular.

The unique ideas of the present invention as described above would not have been easily reached by persons skilled in the art, no matter how the disclosures or teachings by the above cited references are referred to or combined together, since they do not involve any ideas or concepts that could suggest the above subject matter of the present invention

As mentioned above, it is strongly believed that the present invention can provide excellent functions and effect that would have been unable to be conceived through the cited references and therefore the rejection under 35 U.S.C. 103 does not apply. Reconsideration is therefore respectfully requested.

This amendment is being submitted along with a Request for Continuing Examination (RCE).

CONCLUSION

In view of the Remarks and the Request for Continued Examination, reconsideration of the application is respectfully requested. Claims 1 and 3-7 are now pending and a Notice of Allowance for these claims is earnestly solicited.

Respectfully submitted,

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